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ABSTRACT

In response to the current crisis in the field of nursing, a study examined nursing students' perceived work-related stress and differences among associate degree, diploma, and baccalaureate nursing programs in their preparation of nursing students. The 171 subjects, representing the three different nursing programs, completed a questionnaire concerning various state and trait measures of emotions (including general anxiety, apprehension about communication, and anxiety about a future nursing career). Differences among the three groups of students were assessed from the perspective of Mehrabian's theory of emotion. Predictors of anxiety about a nursing career were investigated for the overall sample and for the three groups separately. Findings indicated that baccalaureate students were the least apprehensive about communication and felt most dominant in their setting. Associate degree students were most anxious about nursing if they did not feel dominant, while diploma students were most anxious if they did not feel dominant or were apprehensive about communication, and baccalaureate students were most anxious if they were generally unhappy. Better screening of nursing program applicants, and more preparation during training for job-related stress, are recommended. (Three tables of data are included, and 30 references are appended.) (ARH)

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NURSING, NURSING EDUCATION, AND ANXIETY

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ABSTRACT

One hundred seventy-one graduating students in associate degree, diploma, and baccalaureate nursing programs completed a questionnaire concerning various state and trait measures of emotions (including general anxiety, apprehension about communication, and anxiety about one's future nursing career).

Differences among the three groups of nursing students on the various dimensions of emotions, anxiety, and communication apprehension were assessed from the perspective of Mehrabian's theory of emotion. Predictors of anxiety about one's nursing career were investigated for the overall sample and for the three groups separately.

Findings indicate that baccalaureate students are least apprehensive about communicating and feel most dominant in their setting. In addition, associate degree students were most anxious about nursing if they did not feel dominant, diploma students were most anxious if they did not feel dominant or were apprehensive about communication, and baccalaureate students were most anxious if they were generally unhappy. The results are discussed in terms of Mehrabian's emotion theory, the current crisis in and future direction of nursing education, and the use of theory in designing a strategy for nursing as a profession.

Introduction

The 1980's is a time of turmoil for nursing. One of the most serious problems is a shortage of nursing personnel, due in large part to nurses leaving their nursing practice in record numbers (O'Donovan and Bridenstine, 1983). A national survey has indicated that about 22% of registered nurses in the U.S. are neither actively practicing as nor looking for employment as, nurses (USDHHS, 1984). Several causes of this exodus from the field have been posited, with various sorts of work-related stress as the most oft-cited suggestion (Kramer, 1974; Price and Mueller, 1980). This stress is likely due to several factors. First, caring for ill people itself can be very stressful, and since nurses have some of the greatest contact with patients, their experience can be particularly stressful. Second, nurses find themselves near the bottom of the hierarchy in the health professions, poorly paid, and not well-respected by other health professionals (Parkes, 1985; Wandelt, 1980; Aiken, 1983).

The American Nursing Association has been making a serious attempt to professionalize nursing as a way of upgrading its status among the health professions. One of the principle foci of that move has been to suggest that every nurse should by 1985 have a Baccalaureate degree (ANA, 1979). In spite of their efforts, change is coming slowly--only about 27 percent of nurses (as of 1984) actually have a baccalaureate degree (USDHHS, 1984)-- and low pay and relative lack of autonomy persist (Aiken, 1983). In fact, a pecularity of the nursing education situation is that individuals in associate degree, diploma, and baccalaureate programs are hired in approximately the same jobs with approximately the same low pay and limited responsibilities (National Commission on Nursing, 1981). As a result of this situation, baccalaureate

nurses (with the longest and most professionally-oriented training program) are most likely to drop out of the profession (Knopf, 1975).

In short, the nursing profession is faced with considerable institutional stress, and has chosen to reduce some of that stress by upgrading the education of its students. This manuscript assesses both the reaction of nurses to perceived work-related stress as well as differences among the three educational programs in their preparation of nursing students for stress on the job. In order to lay the groundwork for this assessment, three types of background literature will be briefly reviewed: first, differences among nurses in the three types of nursing education programs, emphasizing stress and anxiety; second, the relationship between the nursing profession and anxiety; and third, Mehrabian's emotion theory as a framework for understanding the phenomenon of anxiety.

Associate Degree, Diploma, and Baccalaureate Students

Little research has been conducted specifically on differences among the three groups of nursing students; much of the existing research on nursing students was conducted in the late 1960's and early 1970's, before many changes in the educational programs and the field of nursing occurred (Schwirian, 1984). We do know a few things about differences among the three groups of students, however, which may provide us with some clues as to differences there may be among the groups on stress and anxiety. Associate degree students are more likely to be married, male, non-white, and of lower socioeconomic status than diploma and baccalaureate students (Bullough & Sparks, 1975; Knopf, 1972). Baccalaureate students tend to have better high school grades and Scholastic Aptitude Test scores, while associate degree students tend to have the lowest scores (Wren, 1971). Baccalaureate students have a more professional image of nursing than the other groups of students, with diploma students having the

least professional image of themselves (see Schwirian, pp. 220-1). Associate degree students are higher on structure, diploma students are lower on autonomy (Meleis & Farrell, 1974), and baccalaureate students are higher on self-actualization (Goldstein, 1980), than the other groups of students.

Nursing Students and Anxiety

Nursing students encounter more stressful situations than many other students. They interact with dying patients, watching some of them die and experiencing guilt concerning their deaths; they are also insecure about their competence, and find it difficult to interact with more experienced nurses and other health professionals (Parkes, 1985). Once they become nurses, they also experience considerable stress, with nurses experiencing more mental illness than all but a few other professionals (NIOSH, 1980).

One factor that may predispose nurses to cope poorly with stress in school or on the job is anxiety. Research has not been conducted to address the question of whether students in the three nursing education programs differ from one another on anxiety that might, under stressful conditions, predispose them to drop out of the profession. Furthermore, various sorts of specific anxiety concerning aspects of nursing have not been assessed among nursing students, with the few previous studies focusing on a general personality measure of anxiety.

This paper will present a study which compares students from the three different nursing programs on various measures of anxiety, including nursing-specific anxieties, to help inform decisions concerning appropriate recruitment of students into the programs and impact of anxiety variables on possible stress reactions later in their careers. In order to assess anxiety among nursing students in a way that can begin to organize our understanding of

the topic and lead logically to further research, we must first understand anxiety in a theoretical context.

Mehrabian's Emotion Theory and Anxiety

Mehrabian and his colleagues (1980) have conducted seminal research on trait and state emotions and their interrelationships, describing them in terms of three basic emotional responses: pleasure, arousal, and dominance. These three state-emotions have been found to be independent, affective dimensions which, in various combinations, are both necessary and sufficient to describe a variety of emotional states. For example, anxiety is a combination of low pleasure, high arousal, and low dominance (Russell and Mehrabian, 1974).

Mehrabian's theory suggests that individuals who experience greater (state) anxiety about their profession will also find work less pleasurable, more arousing and less dominance-eliciting than those who experience lower anxiety about their profession. These effects have been found to interact with five (trait) personality measures to be discussed below: trait pleasure, trait arousal, trait dominance, arousal-seeking, and communication apprehension.

A person who has a high level of trait pleasure should perceive situations as more pleasurable than a person with low-trait pleasure (Beebe and Biggers, 1986). This leads us to believe that a person with high-trait pleasure will feel less stress in a comparable situation than a person with low-trait pleasure. A person with a high level of trait arousal will perceive situations to be more arousing than a person with low levels of trait arousal (Biggers, 1986). The high-trait arousal person will thus find comparable situations to be more stressful than will the low-trait arousal person. A person with high-trait dominance will generally find situations to be more dominance eliciting than the person with low-trait dominance (Beebe and Biggers, 1986). The high-trait dominance person, then, will feel less stress in the same

situation than the low-trait dominance person. In short, indidividuals with high-trait pleasure, low-trait arousal, and high-trait dominance will feel less stress in comparable situations than will their counterparts.

Arousal seeking tendency is a personality characteristic which predisposes persons to prefer different levels of arousal in their environment. A person who is a high-arousal seeker will prefer higher levels of arousal in the environment than a person who is a low-arousal seeker. A high arousal seeker will perceive the arousal component of a potentially stressful situation to be less bothersome than the low-arousal seeker, and will report less anxiety than the low-arousal seeker in a comparable situation.

Communication apprehension is a personality characteristic which predisposes individuals to feel anxious when called upon to communicate orally. Persons who choose the nursing profession, it is hypothesized, will be low on this dimension, as those wanting to enter the nursing profession realize that oral communication with strangers will be a part of the job. Through a self-selection process we would believe that by the time a class of nursing students is ready to graduate, only a few communication apprehensives would remain (Richmond and McCroskey, 1985). Since nursing requires oral communication, those with high communication apprehension scores should report high levels of anxiety when thinking about being a nurse.

Rationale

The review of the literature suggests several hypotheses. Generally, baccalaureate nursing students are more oriented toward the professional and scientific aspects of their job and may be more dominant individuals and have less anxiety about their careers. Specifically,

Hypothesis 1: Baccalaureate nursing students will be more dominant than the two other groups of nurses.

Research on differences among the three groups of nursing students in academic performance and professional versus traditional attitudes toward nursing suggests that baccalaureate nursing students may be more comfortable with the cognitive-verbal elements of nursing practice, while associate and diploma students would be more attuned to the socio-emotional "caring" aspects. Thus,

Hypothesis 2: Communication apprehension scores for baccalaureate nursing students will be lower than for other nursing students.

If trait emotions are an important determinant of anxiety (as strongly suggested by Mehrabian's theory and research), then:

Hypothesis 3: Individuals high on trait pleasure will report less anxiety than individuals low on trait pleasure.

Hypothesis 4: Individuals high on trait arousal will report more anxiety than individuals low on trait arousal.

Hypothesis 5: Individuals high on trait dominance will report less anxiety than individuals low on trait dominance.

If, again as Mehrabian suggests, arousal seeking tendency relates to the level of arousal that is preferred and arousal is a major component of anxiety, then:

Hypothesis 6: Individuals with higher arousal seeking tendencies (higher levels of preferred arousal) will report less anxiety.

Method

Sample: In the present study, a questionnaire was administered to all 171 graduating students from an associate degree (N=52), a diploma (N=62), and a baccalaureate (N=57) nursing program. Our respondents were recruited as subjects from the associate degree program at a local community college, a three-year diploma program at the public county hospital, and a four-year B.S.N. (baccalaureate) program at a private university in the area, respectively.

Instruments: Sociodemographic data and responses to items from five psychometric scales were collected. Caution was taken to ensure accurate responses from the students, and items from the scales were placed in a random order. Alternate items were reversed to discourage any patterning of responses.

Traditional sociodemographic data on age, sex, marital status, number of children, geographic region of origin, employment and education were collected. The psychometric scales include measures of: 1) trait emotion, 2) stimulus-response (state) emotion, 3) self-reported communication apprehension, 4) arousal-seeking tendency, and 5) the dependent measure, state anxiety (stress related to nursing).

Measures of trait emotion included assessments of trait pleasure, trait arousal and trait dominance as determined by the semantic differential (Mehrabian & Russell, 1974). For each dimension, respondents indicate how they generally feel. These measures of trait emotion have been used quite reliably in past studies (Beebe and Biggers, 1986; Biggers, 1986; Biggers and Masterson, 1984).

The measures of state emotion, assessing the domains of state pleasure, state arousal, and state dominance, also utilized the semantic differential, on

which respondents answer on a nine-point, Likert-type scale (Mehrabian, 1980). For each dimension, respondents indicate how they feel with respect to nursing. These measures have also been found by Mehrabian (Beebe and Biggers, 1986; Biggers and Masterson, 1984; Biggers and Rankis, 1983) to be highly reliable.

The self-report scale of communication apprehension is comprised of items which reveal the individual's level of anxiety about communicating orally. Responses are coded on a five-point, Likert-type scale, and the composite scale has been found to be the most reliable of all oral communication anxiety scales (McCroskey, 1977).

Questions asked on the domain of arousal-seeking tendency determine the various levels of arousal persons prefer in their environment. Respondents answer on a nine-point, Likert-type scale, once again, quite reliable (Russell and Mehrabian, 1974).

The dependent variable, state anxiety, or stress, measures the amount of anxiety a person perceives when confronted with stimuli, here, the fact that one's career is to be nursing. This attitude domain focuses on a reaction to a particular stimulus rather than a trait (Russell & Mehrabian, 1974). Measurement is on a series of three nine-point bi-polar adjectives. Highly reliable results have also been found for this scale (Beebe and Biggers, 1986; Biggers and Masterson, 1984).

Reliability was checked for each of the measuring instruments by calculating coefficient alpha (Nunnally, 1977). Results of this analysis suggested that each of the scales was clearly reliable enough for this type of research. Specific alpha values ranged from .60 to .92, with a mean of .83.

Results

Demographic and Academic Differences among Groups: In our sample, there are significant differences among the groups in the proportions of men and women

and married individuals, and the mean education, number of children, and age. Associate degree students were least likely (4%) to be male, diploma students were next most likely (14.5%), with bacca- laureate students most likely of all to be male (30%). Diploma students were much more likely than the students in the other two groups combined to be married (55% vs. 17%) and have children (39% vs. 18%). They were also most likely (98% vs. 56%) to report having some junior college or a college degree, and were the oldest of the groups of students, with baccalaureate students being the youngest. These results generally correspond to previous research suggesting that junior college and/or diploma nursing students are more likely to be older and from a lower socioeconomic background than students in baccalaureate programs.

INSERT TABLE 1 ABOUT HERE

Tests of Hypotheses: Hypothesis 1 suggested that baccalaureate nursing students would be more dominant or less submissive than two- and three-year nursing students. A one way analysis of variance was conducted using trait dominance scores as the dependent variable. As shown in Table 1, the result of this test suggested that there was no significant difference among the groups of nursing students. Thus, the hypothesis was not supported for trait dominance, suggesting that, overall, baccalaureate nursing students do not see themselves differently from the other nursing students. A second test of this hypothesis was conducted using state dominance scores, which reflect the way people see themselves in relation to a particular situation. This analysis suggested that some nurses actually feel more dominant about their future work than do others, F (2,168) = 5.93, $p < .004$. Scheffe's test suggested that the difference is between those nurses from the baccalaureate program (who feel more dominant) and both diploma and associate degree students (who feel less

dominant). There was no parallel difference among the groups of students, however, in anxiety about their future nursing career.

Hypothesis 2 suggested that baccalaureate nursing students would have lower communication apprehension than the other groups of nursing students. A one-way analysis of variance was conducted to test this relationship (see Table 1). The analysis of variance indicated significant differences between the groups, F (2,168) = 6.62, ($p < .002$). Scheffe's test of means was used to further investigate this difference. This analysis suggested that nurses from the baccalaureate had significantly less communication apprehension than did nurses from the two-year program, supporting the hypothesis.

INSERT TABLE 2 ABOUT HERE

Hypothesis 3 suggested that those nursing students with high levels of trait pleasure would report less anxiety about becoming nurses than those with low trait pleasure scores. To test this relationship, a correlation of anxiety and trait pleasure scores was calculated. A significant and negative correlation would mean that as trait pleasure increases, anxiety about nursing decreases. As shown in Table 2, such a pattern was discovered, supporting the hypothesis (r=-.25, $p < .01$).

Hypothesis 4 suggested that high trait arousal would be associated with greater levels of anxiety. A positive and significant correlation would support such a hypothesis. This was not found, however, and thus the hypothesis was not supported.

Hypothesis 5 suggested that high trait dominance would be associated with less anxiety. Trait dominance and anxiety scores were correlated and a significant and negative correlation was found (r = -.29, $p < .001$). Thus, the hypothesis was supported.

Hypothesis 6 suggested that persons with high arousal seeking tendency (higher levels of preferred arousal) would feel less anxiety when thinking about nursing. A negative and significant relationship exists between the two variables, supporting the hypothesis (r = -.13, p = .04).

Additional Analyses: Two post hoc analyses were conducted in order to better understand the source of differences (or lack of differences) among the groups. First, demographic variables were entered as covariates to see if the demographic variables might explain some of the differences (or lack of differences) among the groups on personality variables in the analyses of variance reported earlier. Number of children was a signifcant and positive predictor of trait pleasure, (B = .37, p < .02). Even when this covariate was included in the analysis, however, student group remained an insignificant predictor of state anxiety. Marital status and age were significant covariates with arousal-seeking, such that individuals who were married (B = -.49, p < .01) were less likely to be arousal-seeking, while those who were older were slightly more likely to be arousal- seeking individuals (B = .17, p < .025). No other covariates were significant predictors of personality variables. In short, the inclusion of the covariates did not change the impact of student group on the personality variables.

INSERT TABLE 3 ABOUT HERE

In the second post hoc analysis, the personality variables were correlated with state anxiety for each of the three groups separately to see if any of the personality variables might be more strongly related to state anxiety in one group than in another. If this sort of outcome were obtained, we might suggest that students be screened for different possible antecedents of stress reactions depending on which program they were enrolling in. Results are

presented in Table 3. There we see that for associate degree students, the strongest predictors of anxiety about their nursing career were trait dominance and arousal- seeking, with dominant and arousal-seeking individuals generally found to be less anxious about their nursing careers. For diploma students, trait dominance was also a significant predictor, as were communication apprehension and trait pleasure. For baccalaureate students, trait pleasure was the strongest predictor and communication apprehension was a barely significant predictor. Neither trait dominance nor arousal- seeking tendency was a significant predictor for baccalaureate students.

Multiple regression analyses were conducted for each of the groups separately to extend this second analysis to the include multiple predictor variables simultaneously. Once again, different results emerged for the three groups. For the associate degree students, state pleasure ($\underline{B}$ = -.46, $\underline{p}$ < .002), trait arousal ($\underline{B}$ = .40, $\underline{p}$ < .005), and trait dominance ($\underline{B}$ = -.36, $\underline{p}$ < .025) were significant predictors of trait anxiety. For the diploma students, only trait dominance ($\underline{B}$ = -.36, $\underline{p}$ < .01) was a significant predictor of trait anxiety. For the baccalaureate students, trait pleasure ($\underline{B}$ = -.42, $\underline{p}$ < .005), state dominance ($\underline{B}$ = -.44, $\underline{p}$ < .025) and state arousal ($\underline{B}$ = .29, $\underline{p}$ < .05) were signifcant predictors of trait anxiety.

Discussion

The results of this study suggest that important issues concerning stress experienced by nurses may be conceptualized using Mehrabian's emotion theory. First, nurses graduating from four-year baccalaureate programs indeed felt more dominant about their future work than all of the other groups. Presumably they felt more confident about their work than the other nursing students either because they may have had a more professional orientation toward their work to begin with, or else because something about their training made them feel so.

Indeed, recent comparisons among the groups of nurses indicate that baccalaureate nursing students have the most professional orientation toward their future occupation.

Second, it seems that trait emotional levels are important when considering the anxiety that a potential nurse will face. Trait levels of pleasure and dominance are both sigificantly related to this problem. Those nurses with low trait pleasure and/or with low trait dominance tended to express most anxiety about their future work. More specifically, associate degree nursing students who are low on trait dominance are most anxious; diploma degree nursing students who are low on trait dominance and high on communication apprehension are most anxious; baccalaureate students who are lowest on trait pleasure are most anxious.

Third, the personality variable of arousal seeking seems to be important for understanding anxiety in the work situation. Those who have higher levels of preferred arousal appear to be less likely to develop severe stress reactions.

Fourth, our suggestion that communication apprehension should be lower in baccalaureate nursing students is supported. Their communication apprehension level may be lower than that of the other nursing students because their verbal skills may be greater than those of the other nursing students.

Limitations: Our study has several limitations that may limit the generalizability of its findings. First, the data were collected cross-sectionally, i.e., neither experimentally or over time. Thus, causal inferences (for example, about the effect of trait variables on state variables) must be interpreted cautiously. Second, students in our sample were selected from one of each type of nursing education program, which may not be representative of either the three types of students or programs.

Mehrabian's theory of emotional eliciting qualities may also have two limitations of note. First, the method of measurement with bipolar adjective pairs uses words, which may be thought of as cognitive elements, to describe emotional states. Several scholars have suggested that not emotion, but rather the cognitive description of emotion, is thereby being tapped here. If the theory is to deal with emotion, as distinct from cognition, then new measuring instruments may need to be developed which do not use words. Second, to the extent that self-report data are suspect, it may be advisable to show caution in the application of this theory, since it is based on such information. If, however, the findings are replicable and relate systematically to other measures, we can have some degree of confidence in them.

Implications: Two sorts of changes in nursing education practices should be considered in light of our results--screening of applicants based on trait emotion variables, and various interventions in the three types of educational programs to counterbalance predispositions toward experiencing stress on the job. Since nurses are prone to experience high levels of stress at their workplace, it could be useful to identify those persons who are more likely to cope poorly with stress. Thus, borderline students with low trait pleasure or low trait dominance might be viewed cautiously as applicants, and those who are low on communication apprehension or high on level of preferred arousal might be considered a little more seriously as applicants than they might otherwise be.

Associate degree and diploma students who are low on trait dominance may be lacking in self-confidence and have a relatively low self-concept, resulting in concern about future nursing practice. Diploma students who are high on communication apprehension also express some concern about going into nursing. Baccalaureate students low on trait pleasure express significant concerns about

their future work situations. These results suggest that in the respective programs, interventions to aid self-esteem, self-confidence, and confidence at interpersonal communication, and to lower feelings of unhappiness and/or depression may be important devices for reducing anxiety about students' nursing careers.

Future research should further investigate the extent to which differences among the three major nursing programs may be important in understanding anticipated anxiety and stress on the job for nurses. That is, in order to fully understand the problems of stress for nurses, background variables and type of educational program must be included in the equation. Ultimately more research on stress in nursing which uses personality and educational variables will aid in the development of programs to help nurses deal with the occupational pressures they feel. Mehrabian's theory may be just that theoretical coherence which can lead to a meaningful program of research to help understand and address educationally the problem of stress among nurses.

Table 1

Means and Standard Deviations by Group

	GROUP				
	Associate Degree (N=52)	Diploma (N=62)	Baccalaureate (N=57)	F-value	p-value for F
ANXIETY					
Mean	4.21a	4.53a	4.73a	0.90	n.s.
S.D.	2.23	2.01	1.92		
TRAIT DOMINANCE					
Mean	6.13a	5.98a	6.44a	1.75	n.s.
S.D.	1.31	1.37	1.42		
STATE DOMINANCE					
Mean	5.89a	6.07a	6.73b	5.93	.003
S.D.	1.38	1.32	1.35		
COMM. APPREHENSION					
Mean	70.87a	66.73ab	59.16b	6.62	.002
S.D.	15.86	18.35	14.52		

Note: Means with different subscripts are significantly different at $p < .05$.

Table 2

Correlations of Trait Variables with State Anxiety

VARIABLE	Correlation	p-value
Trait Pleasure	-.25	< .002
Trait Arousal	.08	n.s.
Trait Dominance	-.29	< .001
Arousal Seeking Tendency	-.13	< .05
Communication Apprehension	.24	< .002

Table 3

Correlations of Trait Variables with State Anxiety

by Group

	CORRELATIONS WITH STATE ANXIETY BY GROUP		
VARIABLE	Assoc. Degree	Diploma	Baccalaureate
Trait Pleasure	-.18	-.27*	-.31**
Trait Arousal	.17	-.06	.11
Trait Dominance	-.38**	-.51***	-.01
Arousal Seeking Tendency	-.25*	-.11	-.02
Communication Apprehension	.11	.46***	.22*

*** $p < .001$

** $p < .01$

* $p < .05$

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